CAS SEARCH

(il)

AN 1979:120357 CAPLUS

DN 90:120357

TI Pelletizing a sulphur-bentonite clay mixture

IN Caldwell, Bob L.; Fletcher, Ronald B.

PA Agri-Prassco Joint Venture, Can.; Agri-Sul Equipment

SO U.S., 5 pp.

CODEN: USXXAM

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4133669	Α	19790109	US 1977-789094	19770420
	AU 7835102	A1	19791018	AU 1978-35102	19780414
	CA 1118227	A1	19820216	CA 1978-301223	19780417
PRAT	US 1977-789094		19770420		

AB A molten (245°F) mixt. of 1-3 parts bentonite dust and 7-9 parts S is passed into the upper chamber of pelletizing vessel and droplets fall

through a perforated plate in the lower annealing chamber. This chambers

contains liq. fertilizer, temp. 50-120°F, and as the S-bentonite droplets pass through the cooling zone they are annealed into hard smooth

pellets by the time they reach the bottom of the pelletizing vessel where $% \left(1\right) =\left(1\right) \left(1\right)$

they are collected and dried in warm dry air giving a water-degradable prill.

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ANSWER 8 OF 15 PASCAL COPYRIGHT 2003 INIST-CNRS. ALL RIGHTS

RESERVED. on STN

AN 2002-0411111 PASCAL

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TIEN Leaching losses of **sulphur** from different forms of **sulphur** fertilizers: a field lysimeter study

AU RILEY N. G.; ZHAO F. J.; MCGRATH S. P.

CS Agriculture and Environment Division, IACR-Rothamsted, Harpenden, Hertfordshire AL5 2JQ, United Kingdom

SO Soil use and management, (2002), 18(2), 120-126, 30 refs. ISSN: 0266-0032 CODEN: SUMAEU

DT Journal

BL Analytic

CY United Kingdom

LA English

а

AV INIST-20853, 354000101568270070

AB Inputs and outputs of **sulphur** (S) were quantified over a three year

period using field lysimeters containing undisturbed $60\,\mathrm{cm}$ deep soil

monoliths of a sandy loam. There were four treatments, including

control (no S) and three forms of sulphur fertilizers: ammonium

are given.

Vukovar

4, Kutina 44320, Croatia.

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AN
     1988:227561 BIOSIS
DN
     BA85:116796
TТ
     SULFUR-SODIUM BENTONITE MIXTURES AS SULFUR FERTILIZERS 1. THE
     EFFECTS OF SULFUR-SODIUM BENTONITE RATIOS ON THE RATE OF
DISPERSION AND
     PARTICLE SIZE DISTRIBUTION OF ELEMENTAL SULFUR DISPERSED FROM
     LABORATORY-PRODUCED PRILLS.
ΑU
     BOSWELL C C; OWERS W R; SWANNEY B; ROTHBAUM H P
     MINIST. AGRIC. FISHERIES, INVERMAY AGRIC. RES. CENT., MOSGIEL, NEW
CS
     ZEALAND.
SO
     FERT RES, (1988) 15 (1), 13-32.
     CODEN: FRESDF. ISSN: 0167-1731.
FS
     BA; OLD
     English
LΑ
AB
     Sulfur/sodium bentonite fertilizer prills were made by blending
     between 5 and 40% by weight of a swelling sodium bentonite clay
with
     molten sulfur (S) and chilling droplets of the mixtures in oil.
The
     resulting prills were hard and dust free and thus offered a
suitable form
     for elemental \textbf{sulfur}\ (\textbf{S}^{\, \circ}) transportation and application. The
     prills were stable at normal room temperature and RH. Prill
strength was
     much reduced by prolonged storage at 80% RH. With 15% or more
bentonite
     the bulk resistivity was sufficiently low that no electrostatic
     build-up was likely and consequently there was little risk of
spontaneous
     combustion. Prills containing 10% or more bentonite disintegrated
when
     placed in water and both the rate of dispersion and the fineness
of the
     dispersed S° particles increased bentonite content. Bentonite
     contents of 15-20% appeared to offer the best combination of rapid
prill
     dispersion, fine dispersed S^{\circ} particle size, and high S^{\circ}
     content.
L6
     ANSWER 5 OF 11 CABA COPYRIGHT 2003 CABI on STN
     2002:139173 CABA
ΑN
DN
     20023058155
ΤI
     Fertilizer production and environmental protection: Petrokemija
Ltd.
     Fertilizer Company
ΑU
     Losso, I.; Schultz, J. J. [EDITOR]; Waggoner, D. R. [EDITOR]
CS
     Fertilizer Production, Petrokemija Ltd., Fertilizer Company, Aleja
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SO Proceedings of an International Workshop on Current Environmental Issues

of Fertilizer Production, Prague, Czech Republic, June 7-9, 1999, (2002)

pp. 117-125. 2 ref.

Publisher: IFDC - An International Center for Soil Fertility and Agricultural Development. Muscle Shoals

Meeting Info.: Proceedings of an International Workshop on Current Environmental Issues of Fertilizer Production, Prague, Czech Republic,

June 7-9, 1999.

ISBN: 0-99090-133-0

CY United States

DT Book; Book Article; Conference Article

LA English

AB Petrokemija Ltd. Fertilizer Company located at Kutina is the only fertilizer, carbon black, and bentonite clay manufacturer in Croatia. The production processes, the capacity of its production

units,

and the nutrient content of various ${\bf fertilizer}$ products are discussed.

Rapid economic growth and expansion of the human population have produced $% \left(1\right) =\left(1\right) +\left(1\right) +$

a number of local, regional, and global environmental problems, viz .,

global warming, ozone depletion and water pollution. Environmental issues $% \left(1\right) =\left(1\right) +\left(1\right) +$

are discussed concerning the ${\bf fertilizer}$ industry involve the whole chain

of activities including production, storage, transport, and use of **fertilizers** at Petrokemija. These are the potential of producing gaseous

and solid air pollutants (ammonia, nitrogen oxides, sulfur dioxide,

fluoride and solid particulates), waste water pollutants (ammoniacal and $\ensuremath{\mathsf{S}}$

nitrate nitrogen, phosphates, fluorides, oils and suspended solids), and

solid wastes composed of phosphogypsum and calcium fluoride. A phosphogypsum disposal pond as a solution for the major environmental

 $\ensuremath{\operatorname{problem}}$ of the phosphogypsum produced from the production of phosphoric

acid by the wet phosphoric acid process, is also discussed.



1979:473665 CAPLUS

91:73665

FI Granular sulfur-bentonite mixture for fertilizer

IN Caldwell, Bob L.

PA Canadian Superior Oil Ltd., USA

SO Can., 12 pp. CODEN: CAXXA4

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
<u>PI</u>	CA 1054821	A1	19790522	CA 1975-235667	19750917
	AU 503623	B2	19790913	AU 1976-17788	19760915
PRAI	CA 1975-235667		19750917		
	US 1976-683900		19760311		

AB An improved method for producing a water-degradable granular solid suspension of elemental S in **bentonite clay** is described. Thus, 1-3

parts (out of 10 parts) dry **bentonite clay** dust was added, with continuous mixing, to 7-9 parts liq. S at 240-300°F. The uniform mixt. was poured onto a wet metal plate or moving wet metal belt, cooled,

comminuted, and screened. Lab. tests of resulting granular products

indicated they possess good storage properties under high temp. and $% \left(1\right) =\left(1\right) +\left(1\right)$

humidity and disintegrate to fine particles on wetting. Samples having a

particle size of -4, +14 mesh and contg. 10% of bentonite were wet-screened after being submerged for 1 h; 85% of the granules passed

through 40 mesh and 50% through 80 mesh, indicating that the degraded $\ensuremath{\text{S}}$

granules should be available to plants in a reasonable time.

=> d his

(FILE 'HOME' ENTERED AT 06:11:00 ON 16 AUG 2003)

FILE 'AGRICOLA, BIOSIS, BIOTECHNO, CABA, CAPLUS, FEDRIP, FOMAD, FOREGE,

FROSTI, FSTA, JICST-EPLUS, PASCAL, PROMT, MEDICONF, NTIS, NUTRACEUT,

SCISEARCH, TOXCENTER' ENTERED AT 06:11:28 ON 16 AUG 2003

- L1 1085 S BENTONITE AND SULFUR
- L2 3 S L1 AND SOIL CONDITIONER
- L3 15 S BENTONITE CLAY AND SULPHUR
- L4 68 S BENTONITE CLAY AND SULFUR
- L5 52 DUP REM L4 (16 DUPLICATES REMOVED)
- L6 11 S L5 AND (FERTILIZER OR SOIL CONDITIONER)

sulphate (AS); micronized elemental sulphur (MS°); and bentonite clay and elemental sulphur mixture (BS°).

Sulphur was applied at the beginning of the experiment in autumn at 50

kg ha⁻¹. Atmospheric deposition varied between 6.7 and 7.8 kg S ha⁻¹ yr⁻¹. Leaching losses of S ranged from 35 kg ha⁻¹ in the control to 83 kg ha⁻¹ in the AS treatment over three years, with dissolved organic S accounting for 6-10% of the S

leached. In the first year, 7, 26 and 72% of the applied S was lost to

drainage water in the BS°, MS⁰ and AS treatments,

respectively, and the percentages increased to 33, 75 and 96% by the end $\,$

of year 3. No significant differences in $\operatorname{\mathbf{sulphur}}$ uptake by herbage were

found in any of the harvests except a significant increase in the BS° treatment in the second cut of the second year. Over three years, total S outputs exceeded total S inputs in all treatments, with

the control and the AS treatments showing a larger S deficit (34- $35\ kg$

 ha^{-1}) than the MS⁰ (23 kg ha^{-1}) and BS^o

(7 kg ha⁻¹) treatments. The deficits indicate a depletion of soil S, probably through net mineralization of organic S. The results

confirm that sulphate was highly mobile and prone to leaching under the $\,$

experimental conditions, whereas the slow release characteristics of $% \left(1\right) =\left(1\right) +\left(1\right$

elemental S, particularly ${\tt BS}^{\, \circ}$, led to smaller leaching losses and larger residual values.

L3 ANSWER 9 OF 15 PASCAL COPYRIGHT 2003 INIST-CNRS. ALL RIGHTS RESERVED. on STN

AN 2000-0485715 PASCAL

CP Copyright © 2000 INIST-CNRS. All rights reserved.

TIEN Availability of different forms of **sulphur** fertilisers to wheat and

oilseed rape

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CS Soil Science Department, IACR-Rothamsted, Harpenden, Hertfordshire, AL5

2JQ, United Kingdom

SO Plant and soil, (2000), 222(1-2), 139-147, 23 refs. ISSN: 0032-079X CODEN: PLSOA2

DT Journal

BL Analytic

CY Netherlands

LA English

AV INIST-4772, 354000091914210120

AB A pot experiment was conducted to compare the availability and efficiency

of three $\operatorname{\mathbf{sulphur}}$ (S) fertilisers to wheat in the first year and oilseed

rape in the second year, using six agricultural soils. Four treatments

were applied in the initial year: control (no S), two forms of $\ensuremath{\mathsf{elemental}}$

S (either micronised S° particles or a bentonite + S° mixture) and a sulphate fertiliser (ammonium sulphate). In the first

year, the micronised S° was as effective as the sulphate fertiliser, both producing similar increases of wheat grain yield (on

average 36%) and S uptake (on average 164%) over the control. In contrast, responses to the bentonite + S° form were minimal, indicating a limited S supply. In the second year the control ment

failed to produce seeds in most soils, whereas the micronised S° and sulphate treatments increased seed yields of oilseed rape to an

average of 13.4 and 12.9 g pot⁻¹, respectively. The performance of the bentonite + S° varied between soils: two soils produced yields similar to those of the other S fertilisers, while the remaining

soils had low yields. To test whether the poor performance of the **bentonite clay** + S° fertiliser was due to the lack of exposure of the prills to physical weathering in the glasshouse, the ffect of

freeze-thaw action on the fertilisers performance was assessed in a

separate pot experiment. The responses in wheat yield and ${\bf S}$ uptake showed

that freeze-thaw did not enhance the physical disruption of the prills or

fertiliser effectiveness. These results suggest that the release of

available S from the bentonite + S° mixture was too slow to meet the requirement of wheat and oilseed rape.

L3 ANSWER 5 OF 15 CABA COPYRIGHT 2003 CABI on STN

AN 95:39541 CABA

DN 951900318

TI Put a tiger in your crop

SO Fertilizer International, (1994) No. 337, pp. 40, 43. ISSN: 0015-0304

DT Journal

LA English

AB The development of **sulphur** bentonite as a fertilizer (90% S and 10%

bentonite clay) is described, and the results of a degradability
test